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ABSTRACT

In a controlled experiment, the IIEP attempted to develop efficient teaching materials in the field of educational planning. Informal instructional materials were compiled from the tape recordings, transcriptions, and summary notes of seminars, lectures, and discussions conducted by the IIEP in its training and research program. In this instructional unit, change, innovation, and reform are defined as well as the conditions in which they are each valid and appropriate. The needs for change are considered in their various contexts: the conditions in a given society that produce and indicate educational malfunction and initiate demands for relief. The responses to be made to circumstances of educational malfunction are proposed; and the roles of planners and policymakers, managers, administrators, and various national publics are explored. Related documents are EA 003 931-939 and EA 003 941- 942. (RA)

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No. 51 PLANNING FOR CHANGE IN EDUCATIONAL STRUCTURE, CURRICULUM AND METHODS

by Nathan Kravetz

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PLANNING FOR CHANGE IN EDUCATIONAL STRUCTURE, CURRICULUM AND METHODS

by

Nathan Kravetz

This lecture is part of 'Fundamentals of Educational Planning; Lecture-Discussion Series' a controlled experiment undertaken by the International Institute for Educational Planning in collaboration with a limited number of organizations and individuals aiming at the development of efficient teaching materials in the field of educational planning. By their very nature these materials, which draw upon tape recordings, transcriptions and summary notes of seminars, lectures and discussions conducted by IIEP as part of its training and research programme, are informal and not subject to the type of editing customary for published documents. They are therefore not to be considered as 'official publications'.

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The need for educational change has never been so great and so compelling as it is today. Educational systems in both developing and developed nations have been repeatedly challenged and found wanting. Their goals are grandiose and indeterminate, lofty and given to simplistic tautologies, and offered with hope and expectancy that they will be accomplished.

Internal processes, of receiving and keeping students, of moving them from less to more knowledge, from less to increased skill, from the condition in which they came to one with added value, are too often ineffectual. The schools are creaky, self-sufficient, and irrelevant as to content and method when seen in the light of the real needs of students and of the places where the students live. What seems to be equally troubling is that the measurement of the results of the schooling of students is narrowly focused, frequently unrelated to stated educational and social goals, or subjective and without verifiable criteria.

Thus the current target for many social critics in developing countries is the educational system. Its failures are held to be responsible for increased crime, decreased community concern and deviant behaviour of children, youth and adults.

In developing countries, the frustrations of educational inadequacies are attenuated by insufficient production of manpower, by excessive and wasteful drain upon budgets, by inefficient and self-serving functionaries, and by an end product (student) that has either dropped out too soon or has been so poorly oriented in terms of social and economic needs as to become 'educated unemployed'.

In this climate of clamour and complaint, where even the distresses of ecological upset are charged against the educational system, there is a growing surge of demand for change. The call is for something to be done; it may be something new, or by some for a reversion to something old - but it is for change from what now is in effect.

Such demands have placed educational planners in a new context. They are now being required to consider not only the economic component and values of educational systems, but the multi-dimensional aspects within nations that affect education and are themselves affected by education. One notes, therefore, many instances where interested persons, involved professionally in education or not, speak of needs for change, for innovation, and for reform almost with equal intent.

There is a prevailing sense that these terms are interchangeable, and for planners of educational programmes as well as for the publics who are clients and consumers of education, clarification is needed.

Further, if planning for improvement of educational systems is to be appropriate and promising of success, the moves toward such improvement should be made explicit.

In this paper, I will discuss, first, definitions of change, innovation, and reform, as well as the conditions in which they are each valid and appropriate.

Second, the needs for change will be considered in their various contexts: the conditions in a given society which produce and indicate educational malfunction and bring about demands for relief.

Third, I will propose the responses which ought to be made in circumstances of educational malfunction, and will consider the roles of planners and policy-makers, managers, administrators, and of the various national publics.

Concepts of change, innovation and reform

We may look upon the demand for change in educational procedures and practices as a desire for something different. If the existing condition does not serve, there is the consideration that some functions in it or some of the curricular processes might be slowed down or speeded up. This would be one kind of change. Similarly, one may request more of something and less of another in the structures of the system. Courses or subjects might be dropped or added, for example.

The concept of change may refer to time, so that students in a curriculum might take more time or less. They might enter the structure earlier (in age) and stay later, being provided with additional levels. Change, as may be noted, has a connotation of almost infinite variability, of great and immediate urgency or of none. It may include patches on the old system to produce different results. It may include, therefore, minor amendments, or striking system-wide modifications, so much so that the former situation is hardly to be reorganized.

What I am stressing, is that change may include everything, so long as it is different, and it does not necessarily carry with it implications of planning. Nor does it necessarily include attention to what happens when some kind of change is actually undertaken. When one speaks of change, one must elucidate and clarify what resources are needed for a specific, well-defined change. One must also undertake to determine what resources are available for use, who is to organize and implement the change, what are the anticipated effects, and what are, in time, the observed effects.

I stress the need for careful definition since legislators, educators and citizens-at-large demand change with almost no concept of the need for specificity as to objective, action, and required components.

The call for change is too often a call for 'something else', a very large and quite unfillable order!

The problem of defininining 'innovation' is of a somewhat different magnitude. Our preceding description of change may be seen as including innovation. Something different may indeed be something 'new'. It is in fact in the concept of the 'new' that innovation presents problems to educational planners.

There seems to be among us a general sense that when we innovate, we are immediately and therefore inventive, creative, daring, and well on the way to solving the problems which surround us. Not necessarily! If innovation is seen as a new element which has never before been introduced into an educational system, this is not in itself a reason for introducing it.

In educational parlance, terms such as computers, technology, group dynamics, modular scheduling and team teaching are extant and considered to represent innovation.

The terminology of psychologists and sociologists has long contributed new concepts to educational discussions, if not to practice. More recently the jargon of economists and business management has also introduced concepts for thought and action into systems of education. Interestingly enough, although 'educational systems' have long been common terms among 20th century schoolmasters, the 'system' concept is now considered innovative and does indeed mean more than has so far been understood. It is rather likely, moreover, that by the time these sentences are read, other terms for other 'innovations' will have been introduced.

Innovation is the inclusion of the very new among the existing techniques, methodologies, and processes of education. It is not an 'object' to be loved and adopted for its own sake. Innovation too, must be inspected, judged, and evaluated on the merits of characteristics, costs, assumed effects, and relevance. One may well ask such further questions as:

- if the innovation is quite a drastic departure from the current condition, how readily will it be accepted by those who are looking for some <u>slight</u> difference?

- if the innovation is adopted, what other changes will have to be made in the system?

- if the innovation is really new, how can we call upon previous experience and existing techniques to help make it work?

The questions raised about innovation are not intended to diminish the value of novel approaches to the solution of problems in education, or to impede them. They are, in fact, much like the questions planners and policy-makers must raise with regard to 'change', as has been noted earlier. They are also like the questions and challenges which should be presented when the demands are made for 'something else' in educational operations.

I stress, therefore, that change and innovation may be similar terms though not necessarily interchangeable. Change may include innovations, but not always. Innovation always involves some kind and amount of change. The implications of both, however, must be subject to such questions as those above, and they must not in any case be embraced for their own tempting, if ill-defined, selves alone.

It is when change or innovation (or both) meet the criteria which are determined by specific conditions that they are valid and appropriate. Decisions are to be made as to change or innovation on the basis of the kinds of questions which have been indicated above. Thus, the validity and relevance of innovation are always specific and determinate, relating to particular sets of conditions and responding to similar criteria. Changes of any kind must be equally responsive and relevant if they are to be considered appropriate.

The ultimate test of relevance and validity must be in the objective evaluation of results as they reflect the accomplishment of set goals.

With regard to reform, we are concerned with another kind of change, perhaps with innovation. But the context is somewhat different. Reform is usually broad and extensive in its intent. Educational reform as a concept implies more than patchwork and localized innovation or variety. It encompasses the educational system itself, or sub-systems within that system. It covers the entire country or major aspects of the educational effort within it.

It is with the concept of educational reform that one may associate broad areas of planning and where techniques of analysis and projection, may be applied to masses of financial and human resources data. (It is, of course, true that such procedures may be utilized in the continual planning of on-going systems, but they should be given special prominence for their value in the efficient institution of wide-ranging change, i.e. reform.)

Such techniques require the establishment of purposes and goals related to existing conditions and carefully oriented not only toward the problems of education, but toward the other systems operating in a country.

It is also necessary that planning for reform be based on adequate and reliable data, and that projections take into account the variables which represent all resource inputs, including those which might be considered as innovative elements. The delineation of managerial and administrative responsibilities for implementation includes designation of personnel, their tasks, their inter-relationships and their evaluative feedback from experience. It is, also, no small matter to insist that attention be given to such energy-producing resources as motivation, recognition and reward.

It has been frequently stated that all reforms, like all well-intentioned activities, tend to run out of steam and often begin to resemble in operation and output the system they were organized to replace. It seems to me, however, that with adequate and well-sequenced programmes of continual evaluation and feedback, reforms may continue to be effective. They may be revitalized when knowledge of short-term results is considered and brings forth appropriate responses in the form of further modification or revision, or merely the renewal of enthusiasm when well-laid plans have proven fruitful.

The foregoing discussion has been a review of the concepts of change, innovation and reform in relation to educational planning. We can see that change is a generic term which may incorporate both innovation and reform. It may, however, include neither and so is to be given thoughtful consideration by planners. The serious questions to be asked include those about the reasons for 'change', the narrow or broad effects of the different procedures (or other aspect of educational operation) to be introduced, the ensuing changes which may be called for when a simple or a complex change is introduced, the feasibility of carrying out the proposed change (both as to costs and appropriate personnel), and finally the means for evaluating with reliability the results of the change.

Innovation is said to be something new. Its installation is to be undertaken with much the same caution and planned sequencing as other forms of change. Particular care must be given to the state of receptivity of personnel, their readiness to introduce a 'new' element, and their ability to learn how to apply it for optimum benefit. Innovation is not a magic word. Its application under certain conditions may be ideal; in other circumstances it may be unfeasible, irrelevant, and ludicrous. For developing countries criteria of applicability and relevance must be established if innovation is to be profitably considered.

Reform is the broad application of planned change in systems which require over-all improvement and new relevance to changing conditions. Previously noted considerations or questions to be asked become a basis

for planning system-wide (or sub-system) reform, with greater attention given to the relationships between educational systems and other systems. National or regional factors which impinge upon one another become important if not vital: health needs, transport, community development, manpower needs, and of course the state of the economy. Reform is change which ought to include innovation, and for which planning on an extensive scale is a basic requirement.

Needs for educational change: the social context of demand

In a given society, the truths about educational conditions are frequently brought into the open in several over-lapping areas:

1. First is the home where the child may review his day at school, i.e. his activities within the school's curriculum. He describes the processes as they involve him (as he feels them) and he participates with his parents in a kind of evaluation of his teachers and their teaching. While this may occur at various levels of direct communication and of abstraction, depending upon the age of the child and upon his parents' experience and socio-economic condition, it is fair warning to advise teachers and principals (and other involved personnel) that they were 'had for dinner' on the night before, and will surely be 'had' again. From such encounters, not necessarily face-to-face, the surge of demand for change in curriculum, in school system processes, and possibly in structure, begins to take shape and strength.

2. Students, individually and in groups, make judgments about the school system in which they are enrolled. Recent history has shown that the calls for relevance, for meaning, for attention to problems as seen by the students themselves, began in the universities. Neither developed nor developing countries have been spared the scrutiny and challenge which have arisen. To the student attacks, which often are aimed at faculty and administration, has been added the partisanship of some of their young instructors. Having recently been themselves students in the system and now operative within it as teachers, new faculty members and their student allies have accused their university systems of having inappropriate goals and therefore inappropriate curricula, and certainly ineffective methodologies.

Of what use, they insist, is the accumulation of credits in 'majors' which are unrelated to the needs of educated men in the society which surrounds the university? The attack upon the system in its ponderous tendency to continue to do this year what it has done last year has tended to take two directions.

One direction has been toward an attempt to define the status of the social order within a country and, as it must follow, in the world picture. The concern is global and it attempts to place into a unified form or pattern: (i) the direction in which a nation seems to be moving; (ii) the exigencies of world events; and (iii) the personalized orientations of individual observers. One reads and hears that 'this is how it is in this (our) country and this is what the world is doing; therefore, since this is how I feel about it, our educational system must be corrected thus ...'.

For planners, system reform which attempts to respond to such 'patterns', requires that definitions be sought and that goal-sets be developed with the collaboration of affected individuals and groups. Such a basis for planning calls for more than economic concepts of resource inputs and manpower outputs. There is need for the achievement of a consensus about qualitative elements to help guide the selection and use of resources and to help derive a meaningful evaluation of the outputs at either short- or long-term.

A second direction being taken by the university-based attack on education is toward a critique of the quality and values of the other educational levels: the secondary and primary programmes. It is already evident that secondary students have caught the spark from their senior brethren and have made their own charges of irrelevance, uselessness, inadequacies in curriculum, methodology, and teaching focus. Secondary school students have also expressed their active disagreement with course content, with textbooks used, and with testing procedures applied. They have complained that teachers do not understand them and their problems. (In this case, they have not the advantage as do university students of the nearness in age between themselves and many of their instructors.)

One may be quite safe in anticipating an increase in demand for reform of education by secondary school students. Although in developing countries such students may be thought of as 'elite', many of them, with the university students, have expressed their sense that being selected includes a concomitant obligation of concern and responsibility.

Noting the involvement of university and secondary students in challenge and hostility to their educational systems, one may be pardoned for venturing into the realm of fantasy and looking forward to an increase in criticism and complaint from perceptive and articulate primary school pupils.

For planners, the signals should be clear: it is difficult and almost useless to attempt innovation sporadically within limited segments of educational systems. It may be desirable (and demonstrably effective) to teach mathematics à la Minimast or Nuffield, to restructure the biological and physical sciences curricula, or to adopt individualized

procedures. Planning efforts must seek out the advances which have been confirmed by research and practice. Such changes in patterns, in uses of resources including personnel and time, should be given the attention they deserve in terms of the total situation which is to be modified.

When attention is paid to goals as demanded by students and their allies in protest, planners may begin to connect social needs with educational needs. They should be able to utilize flow-of-student data and unit costs in response to specific country conditions which themselves indicate which goals are 'right' and which are irrelevant.

It is from the determination of goals that system functions may be defined and redefined. Goals and ensuing required functions provide indications of structure and form as well as of curricular processes and the means of teaching for the achievement of system goals. Finally, the over-all planning effort must recognize that means are needed to evaluate the output of the system and to determine whether the goals are being met. I shall discuss this aspect in a later portion of this paper.

3. A third factor in the social context of demand upon education is the response of the ultimate user of the educational system 'product'. This user is yet another participant in the chorus of school 'evaluators' who may decry the system because of specific experience with some of its graduates.

Thus, the employer who finds a school leaver (graduate) unable to cope with factory or office procedures may complain of the curriculum and the school experience of the student in preparing for his (the employer's) needs. The criticisms are numerous; they are specific; and they are based upon individual experience with a limited number of cases. They are often of such nature as:

(a) students cannot write or spell the mother tongue;

(b) they cannot compose a letter or follow directions, written or oral;

(c) they cannot understand job-oriented oral communication and cannot articulate well enough on the job;

(d) they are lacking in sufficient arithmetic skills;

(e) they have not learned necessary motor skills and physical dexterity to handle simple equipment, machinery, and tools;

(f) they do not have sufficient experience or maturity to bring common sense to their work or to face its problems;

(g) they do not have the interest or the motivation necessary to pursue the interests of the employer as if they were their own.

These and other complaints of a similar nature lead employers and businessmen (and some politicians) to call for such changes in curriculum as will produce a more 'accomplished' graduate. Or they will reject the arguments for greater financial support for education by government and community.

Since, for planners, the accumulation of appropriate and accurate data is a virtual necessity, the facts of student achievement must be determined. Also, the schools, whatever may be their structure and methodology, ought not to be accused of failing to accomplish goals they never had. Planners in collaboration with educators must seek innovation and reform which will yield the results sought by employers. However, such results must mirror well-developed goal-sets which were thought through by representatives of the over-all social structure, including employers, but not by them alone.

4. As a corollary to the above, of almost equal importance in the planning of change is the number of graduates who are prepared to become economically active; this, in addition to the quality and capability of the numbers needed. School system output needs to be defined as to numbers in manpower terms, as to the quality and operational potential of such manpower, and as to the various trades and professions into which the manpower will be channeled. Economic and social conditions in a country demand a congruency of outputs. Too many machinists, no matter how skilled, are a factor in economic and social 'pathology' and have a potential for danger which may extend into social and political areas. Too little output of needed workers (or professionals) because of lack of school orientation, institutionalized quotas and controls over entry, or because of inadequate school system curriculum and structure provides a basis for serious criticism and corrective measures.

Planners should recognize that the organization of educational processes and the utilization of resource inputs are the tasks of educators. From psychologists they may learn much about how learning takes place, about motivation, and about the evaluation of results. Sociologists, political scientists, ecologists, and anthropologists and others can provide explanations of social processes, needs, and conditions wherein educational planners must seek their data. It is from such sources that they must ultimately expect to develop their alternatives for decisions. It is through such collaboration among specialists (and without overlooking such non-specialists as community representatives) that planners can anticipate success.

I have been discussing the kinds of issues for which educational systems are held accountable. They have generally been structured in terms of students, their families, and potential employers of system leavers. In the foregoing cases, the issues have mainly been delineated as attacks and criticisms, though their social context has not been overlooked. In such light, I have urged that planning have a multi-disciplinary context and foundation, and that innovation be incorporated within system reform rather than haphazardly introduced and laid on.

Needs for educational change: political and economic contexts

At this point it is important to consider that other factors in a society produce needs for system change. These may be socially, politically, or economically based, but they are inter-related so that shifting elements of one aspect may become a facet of change induced by another aspect.

An example may be drawn from the experience of population movement from rural areas to urban centres. Such migration brings with it needs for the establishment of viable social organization in crowded slums, the maintenance of political stability, the organization and provision of health and sanitation services, the provision of work and re-training of adults, etc. One certain aspect is that it is necessary to adapt, modify, and reorganize existing educational facilities to cope with new circumstances, which are not only new but essentially dynamic in themselves - they are not easily defined except as being in continual flux and change. It is also clear that moves to satisfy any of the needs indicated will have their effects upon the associated needs as well and must be so viewed for planning purposes.

Other examples may be found in change in political structure, form of government, or maintenance of power. Planners may recognize the urgencies for educational change under such conditions as war or revolution (or both), or immediately thereafter. We have noted in numerous developing countries how the establishment in power of new policies brings into action demands for change in education. It is in the re-structuring of the educational system and in the re-modeling of curricula and procedures that new political authorities find their support and anticipate their perpetuity.

There is agreement among scholars and politicians to the effect that the young will become steadfast adherents of national aims and policies when they are introduced early and continually to such doctrines. Further, when the educational system is seen as an operational and goal-oriented arm in the service of national policies, those within it are

readily, even enthusiastically, incorporated in the processes while they are students. Later they undertake their citizenship functions as a reasonable and logical outcome of their educational experiences.

From the economic standpoint, educational system change is given impetus upon the operation of a number of conditions. These may be summarized as follows:

1. The production or output of excessive specific manpower which cannot be absorbed into the national economy. This refers to the so-called 'educated unemployed', well-trained, well-equipped to work, but for whom industrial or other enterprises have no place. The onus may lie upon the fact of insufficient data available to educational planners, inertia on the part of educational authorities in the fact of adequate data, insufficient processes of orientation for students when data are available, or the persistence of traditional aspirations by students and their families regardless of data and orientation.

There may be other reasons for the output of unemployables, particularly from the superior education level. Studies of such conditions are necessary basic steps in planning for educational change.

2. The occurrence of business and trade recessions in which markets constrict, profits become too marginal, the costs of capital and current financing become excessive, all forcing a reduction in labour force and in the use of trained personnel.

Under such recession or depression conditions, special problems develop for the schools. Their continual output of manpower may further depress the labour market and increase the numbers of unemployed. Such circumstances may bring additional stress in the political and social contexts. Further, the schools may need to search for ways to relate existing operations to the realities of economic need. This could include reducing costs, better utilization of present personnel, and the provision of social welfare assistance to pupils and their families.

It might also be noted that large numbers of unemployed may be readily interested in and motivated toward new school experience. This could take the form of perfecting existing skills in the assumption that future employment will be more readily assured. It could also include re-training in new skills and techniques which are considered as meeting potential manpower demands. Unemployed men and women who are not literate can be given intensive courses in reading and writing and thus prepared for more desirable positions which might be available sooner than those to which only illiterates can aspire.

All of this is with the recognition that (a) recessions end and manpower needs rise, and (b) that such programmes for the unemployed should not of themselves put too great a cost burden on the educational system which is expected to economize during a recession.

Finally, periods of recession can provide the unemployed with courses in the arts, in music, in the various activities and occupations of leisure (enforced though it be) which enrich a man with the vitality and resources of humanity.

Educational planners, with economists and experts of industry, commerce, and agriculture, have an important role to play under circumstances which are often perilous to human as well as to national life.

3. The development of conditions, even in a flourishing social and economic system, where the demands upon the national product place limits and constraints upon educational outlays.

Such circumstances tend to occur when budgets for communications, defense, welfare, and the development of natural resources are given priority by policy-makers. The costs of education, perhaps not including higher education science and technology, are restricted and essential growth is made the responsibility of local authorities and residents.

The problem becomes one of seeking to live within one's means in spite of increasing costs. Analysis of programmes must be made so as to determine which are most effective (providing added value) per unit cost, which can be modified and at what cost, and what re-organization of uses of time, personnel and materials would be optimum under the circumstances.

For planners, the need is to refer to original goals and determine the minimum costs for achieving them. Since education is labour intensive, the use of personnel is a basic element in the determination of change in school and system procedures. One can refer here to the potential values of such management techniques as PERT and programme-planning-budgeting for such studies and re-direction.

A further consideration, while perhaps not specifically related to structure and curriculum, is that of the need for school system planners and their colleagues to search for new means of financing education. Questions might be asked as to the limits to which self-help, parent participation, and the local taxpayer might contribute toward school needs. Or as to the dedication of specific natural resources, the establishment of autonomous foundations, operational entities, or other innovative structures. Or whether specifically-calculated formulae of financial allocation might be developed with regard to each of the national systems, including education.

4. The impact of new discoveries and new concerns, requiring continual study and modifications in plans.

Thus, the experiences of space exploration, new sources of power, new capabilities of men-with-machines or cybernetics, new sources for food, and problems of population control, combine to thrust upon educational systems serious tasks. These tasks include not only the preparation of new curricula, but the re-training of teachers, the accumulation and ordering of new correct information, the adaptation of out-moded teaching procedures, the preparation of more effective instructional materials, equipment, and buildings, and the development of new orientation and guidance for students at all levels in the system.

All this would need to follow a careful consideration of system goals as they had previously been expressed, and the preparation of an appropriate policy for the integration of newly-defined goals in keeping with the observed 'explosion' of new information and new processes.

In keeping with the above, and a relevant example, is the resurgence of wide concern for the problems of ecology. This is not the occasion for a review of the nature of ecological balance and the dangers inherent in the developing imbalance. It is important to note, however, that as human technology, increasing population, and increased impingement upon man's environment have developed, scientists have pointed to an ever-greater danger to human life as well as to that of other species.

The pollution of air and water, the depletion of natural resources, the reduction of natural symbiotic relationships, and similar conditions are problems not only for educational planners. They concern all citizens as well as ecological and political scientists.

It is, however, with the total citizenry that educational planning should at first be concerned. Curricula and methods must be devoted to the study of ecology as a partner in the sciences, since its concepts and practices are basic to the daily life of all citizens. Secondly, the schools and the teachers must determine to ensure that the interests and practices of students are compatible with the immediate ecology of each individual school and community.

The response of school planning specialists to the problems of ecology must therefore be three-fold: (i) to consider that ecology is a basic science, linked with biology and the natural sciences, and (ii) to re-orient school curricula to this view at the primary and secondary levels, at least; and (iii) to provide opportunities for leadership by school system personnel in dealing with specific community problems of ecology of direct concern to students and their families.

While the above discussion may not be exhaustive, it serves to provide some basic indications of needs for educational change as they are generated in specific contexts.

The responses of planners

What is to be done? Planning is a task which should be the specific responsibility of given personnel who in turn would call upon other personnel to provide information, assistance, and implementation. There must be, therefore, a structure which embodies within its various moving parts a planning unit.

In order to plan for change in structure, curriculum and methods, a planning unit must undertake a number of procedures which should provide not only basic objective data, but which should offer indications of relatively non-quantifiable elements.

These latter elements would include the following:

1. The level of rigidity-fluidity which prevails in the structure of the system.

Such consideration would indicate to what extent decisions and actions are taken with a view to the preservation of the structure for its own sake (rigidity), and to what extent decisions are taken which promote the effective operation of the over-all system (fluidity). In the latter case, one would assume that there are reasonable opportunities for such structure-modifying practices as self-study, joint consultation, upward-and-downward communication, etc., to exist.

Further, planners could relate the potential utility and applicability of their own efforts within the over-all future programme. One can enumerate instances of newly-independent states where once-rigid colonial structures have remained so, and where the efforts of planners in the early stages are thereby, at the very least, seriously impeded.

2. The innovative-conservative continuum which may characterize the personnel of the national structure and by continuing inference, the personnel of the operational (schools) structure.

In this regard, we are concerned with non-quantifiable aspects which are often difficult to disaggregate. Personnel in educational structures axiomatically tend to maintain existing conditions, operations, and practices: their own. Having attained posts of responsibility, such personnel in the national structure maintain those administrative and managerial behaviours which brought them to these posts. Generally speaking, therefore, even in post-colonial circumstances, the prevailing winds blow in favour of the status quo.

Educational planners, who are nothing if they are not agents of or midwives to change, are obliged to take note of those functionaries in the structure who show promise of seeking to improve the system in its general or specific aspects. Some individuals or administrative groups are certain to be found above the mid-point of the continuum from the conservative to the innovative. It is with these, who give signs of wishing to learn more, to innovate, to provide more effective management of education, that planners may find their early collaborators and allies. This is not to state categorically that most administrative personnel do not seek improvement; it is, in fact, necessary to point out that many presumed conservatives may be, rather, timid yet quite prone to further innovative exploration when the way is shown to be open and à la mode.

3. The quality of personnel in terms of their training and experience which may differentiate the expert from the amateur.

While this element is perhaps more quantifiable than others discussed above (one can count years of training and years and places of previous work), it represents a concern for planners both as to current collaboration and future operations.

In developing nations there is usually a scarcity of trained and experienced personnel, particularly in administrative levels. Yet in numerous cases individual decision-makers have gained their posts of power through combinations of strong initiative, drive, charisma, and the intuition which may make the most of minimum opportunity. It is, therefore, not unrealistic for planners to have to take into account the complex variability which is embodied in an active, decision-making authority who possesses minimum previous preparation, a strong interest in innovation, and a non-rigid character. I would suggest that in terms of potentially positive planning activities, this represents one of the best of all possible combinations.

Still, it would be in the interest of optimum planning procedures for a sense of the prior experience and training to be known along with those already-noted characteristics.

4. The conditions of efficiency-inefficiency which may be operative in the structure or its components.

This aspect is to a large extent related to the previous factors we have reviewed. It is, however, indicated by relatively specific and tangible criteria: plans which were made and not carried out; plans which were made and were carried out badly; plans which were carried out well but from which value was not noted or received. We might specify further the excessive, apparently unnecessary, costs in time, in utilization of personnel, and in expenditure of materials. In general, efficiency-inefficiency criteria describe the frustrations and failures in systems operations, usually those from which little or nothing has been learned so as to prevent repetition.

Planners must not only note such conditions within the structure they are studying; they must collect data as to the effects of such conditions upon their own work as it progresses.

One may summarize further important aspects of administrative structure to which planners should refer: the flow of communication within the system: the procedures which exist for the review of programme implementation: the receptivity within the structure to data which may provide 'danger signals' of structural or other stress: and the relationships which are more or less facilitated among the various agencies that function in the structure.

While the current reference is necessarily at the national level, one must be prepared to note parallel conditions in regions and districts, if not in individual schools. To say this is not to anticipate excessive complications and bottlenecks in the implementation of planning. It is rather to recognize that the various echelons of operation and service often reflect in their activities and conditions at the administrative level.

The elements for planners to identify include both the data which are most readily quantifiable and which need no further elaboration here, and in addition those aspects of planners and processes which have been described above. Following the understanding and assimilation of such concepts, planners may begin to make their strategic responses in taking up their work.

Goals as criteria for planning

In all planning procedures we make reference to goals. It is not the role of planners to determine goals; it is their task to establish goal feasibility and to develop proposals within the established limits of feasibility which will achieve what the goals dictate.

Unfortunately, goals in national systems remain a mix of noble expressions, vague, generalized 'goods', and specified student tasks and behaviours. From this mix, all personnel, including planners, seek to develop educational structures which will promote goal achievement. Within the structures, curriculums become sequences of student-teacher activities tied together and made explicit by specific procedures, materials, and tasks.

Thus, moving from the generalities of goals, school personnel at all levels seek to operate within given frameworks to arrive at an output in conformity with the goals.

I indicate parenthetically that when planners study the feasibility of goals and when teachers operate and attempt to 'teach to the goals', they may arrive at a common conclusion that the goals themselves need review and modification. It is, however, not within the purview of this discussion to go extensively into goal-setting and determination.

Questions remain for planners to ask regarding change in structure, curriculum and methods within established policies. Planners of change must study the goals and the potential problems with the following considerations:

(a) Policy

When policy is laid down, the question of feasibility is studied in terms of financing, availability of personnel, and strictures of time. Thus, policy with regard to the expansion of educational opportunity must receive the same scrutiny.

Similar determinations of policy which require study include:

(i) the limits of compulsory education;

(ii) the extent of primary education;

(iii) the introduction points of specialized and technical secondary education;

(iv) the incorporation of pre-vocational curricula in primary and secondary levels;

(v) the selection of specialized vocational curricula; and numerous others which are basically decisions to be made by policy-makers and tested by planners. Such testing is preface to the question of what structure will carry out the policies laid down?

(b) Structure

Given the testing of policy feasibility, the questions of structure to do the job must be faced. Can the system function effectively, maintain growth, and produce desired outcomes if it uses a six-year primary structure plus a five-year secondary structure? Planners must compare this 'standard' arrangement for an educational system with other possibilities: the extension of primary education upward and/or downward, the introduction of a generalized post-primary cycle, the establishment of multiple tracks for differentiating among students earlier (or later), etc.

Further structural issues involve the placement and duration of teacher training for primary education: secondary for two years; post-secondary for two years; higher education; and so on. Other vocational preparation curricula must be given consideration, all with regard to the criteria of manpower needs, existing structure, and the quality of outputs.

When reviewing education and its levels, existing and proposed, the problem for planners is which system offers a better possibility for achieving established goals.

(c) Curriculum and method

Implicit in the studies of planners about systems and structure is the question of which sequences in curriculum will be most appropriate. Can we, for example, work out a 'modern mathematics' programme, or would a math-science combination have desirable results? Similarly, what would be the usefulness of a foreign language requirement; what languages should be considered; when should foreign language instruction begin; who should teach and by what methods?

Studies are needed which will relate a curriculum 'innovation' as the fusion of geography and history to the uses of textbooks, field studies, research methods, and programmed and audio-visual procedures. New curricula require careful study of existing texts and other materials as well as of methods, with a view to modifications and/or discard.

It is axiomatic that curriculum sequences once organized call for extensive work on the training and re-training of teachers who will be expected to place the sequences into effect.

As a corollary, the effectiveness of school supervisors (or inspectors) needs review both as to agreement regarding their duties and the methods by which those are carried out. The re-training of such personnel is a sine qua non, since it would be difficult to conceive of effective support and assistance to teachers by individuals who did not hold similar concepts of curriculum and teaching procedures. The same view must be applied to school directors and principals for the same reasons.

(d) Priorities and order

In the determination of what is to be done, there is always the question of what is to be done first. This dealing with priorities is not a task which planners alone should undertake. It is likely that in determining feasibility they will feel well prepared to assign order to necessary sequences. I would question, however, that planners can or should attempt to determine priorities in modifying structure or curriculum without reference to the experience and expertise of personnel within the structure. Nor should they ignore the specialists whose knowledge of the psychology of learning and the details of subject matter in curriculum make their collaboration a necessity almost continually.

Decisions can be made effectively with such collaboration on the ordering of sequential curricula, on the introduction of teacher training programmes, on the modifications of system structures, and indeed on all aspects once the planning stage has gone beyond the forecasting of financial and personnel inputs and of manpower outputs.

Priorities may also be given their proper perspective through recourse to community representatives, industrial-commercial-agricultural users of manpower, and to the special concerns of national and regional decision-makers. It is in the development of priorities and the establishment of ensuing procedures that such forecasting techniques as DELPHI, decision trees, and PPBS may be given appropriate use.

(e) Implementation

While implementation is not considered to be the role of planners, their concern is for adequate and thorough formulation of plans and for careful development of steps to be taken before extensive costs and commitments are established.

Therefore, planners may carry out appropriate simulation procedures to anticipate the implementation of change in structure, curriculum and methods. They ask the questions: 'What happens if ...?' and 'What happens then ...?'.

Such anticipatory gaming to attempt to forecast results, while often calling for sophisticated procedures if not data processing techniques, can be a thrifty and useful activity as long as correct and adequate data are available. A further caveat is that the simulators must not fail to recognize and accept that the policies which are constraints and limitations are not open to modification.

The use of simulation to forecast the results of planning may be accompanied by or may follow the establishment of models for the same purpose. We assume that a model may be constructed, consisting of inputs, equations (processes) and outputs, which represents the system as it has been planned both as to structure and operation. Model-making and testing are subject to the same cautions that are noted for simulation. Also, the application of computerized procedures for these tasks may render the work difficult and costly. Both model-making and simulation may, however, provide better concepts of the results of educational planning than intuition or aggressive enthusiasm.

Pilot projects, in which small, carefully structured programmes are developed to represent the over-all picture, may offer even more realistic testing-out of proposed plans. They do, in fact, provide useful information when they are truly representative. Pilot projects, however, call for some investment in personnel, materials, construction, and time, and, in facing the pressures of policy-makers, planners and their collaborators may not find pilot projects feasible.

Planners must be ready to establish evaluative procedures so that anticipated outcomes may be tested and benefits compared. It is with the latter that the choice of forecasting methods should be concerned: how can

we best judge the potential effectiveness of the plan before we proceed with its implementation? Clearly, such references and search for evaluative criteria bring us face-to-face, again, with system goals.

Since evaluative procedures are not the exclusive concern of planners, they must seek to establish collaborative teams (as mentioned earlier) which will propose evaluation. Evaluation is not among the specific considerations of this paper. I will refer to it only thus, therefore, and with the further stipulation that the planning of educational change requires continual feed-back and data from the operating echelons in order to insure that further planning will be even more effective.

Conclusions

The development of educational planning has moved from noting and predicting costs and manpower production to considerations of how changes in educational structure, curriculum and methods may be planned so as to improve systems operations and output.

We find that processes of planning hinge upon numerous conditions, including the various circumstances which bring about and contain demand for change. The definitions of change in education range from the relatively localized and limited to the broad and most wide-ranging reforms. Definition is, therefore, important, as is reference to need when changes are planned. In this regard, special attention is called to the problems inherent in the indiscriminate use of the word 'innovation'.

Needs for educational change are usually within social and economic contexts. Demands for change are heard from individual students and their families as well as from the employers of school leavers. Shifts in population, changes in political structure, new discoveries and inventions, and the vicissitudes of economics bring forth demands that educational systems, or their structure, or their curricula, or their methods (or all of these) be changed.

Planners respond to such demands by first searching for the broadest and most intensive array of information possible. They study the data of the system and the system itself in its structural and operational aspects. They are concerned also with the quality of personnel and the effectiveness of their 'behaviours' in official capacity.

In moving from data-gathering to substantive planning, attention is paid to two kinds of criteria: (i) the goals which have been established by policy-makers for the educational system; and (ii) the feasibility relating to goals, i.e., the available money, personnel, and time to accomplish them.

Planners must seek out and collaborate with educators and other specialists in proposing solutions to the needs of the system and to the demands which have been made. They can thus deal effectively with the structure, curriculum and methods and determine the priorities for establishing and incorporating change within the plan. It is in the use of forecasting techniques, both abstract and empirical, that such priorities may receive verification.

It is the role of planners to so formulate their plans that implementation will be effective and that the evaluation of system operations and output will be mandated. For it is in implementation and evaluation that the effectiveness of plans may be ultimately determined, and that changes sought may be measured with relation to goals.

When change in educational structures, curriculum and methods is indicated, the development of plans is not a final answer. The need is continuous for study and re-study, for receipt of data and for data analysis in the anticipation of ever more effective re-cycling of the processes of planning.